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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

EISEN, ALEXANDER

ART UNIT PAPER NUMBER

2674

DATE MAILED: 09/08/2004

*12*

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/654,141

Applicant(s)

MARKS, RICHARD

Examiner

Alexander Eisen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 24 February 2003.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6, 12-14, 18-22 and 26 is/are rejected.
- 7) ☐ Claim(s) 7-11, 15-17 and 23-25 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5, 12-14, 20, 22 and 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norton et al., (hereinafter Norton), US 5,704,836, reference of record, in view of Nguyen, US 6,072,494, (reference provided with applicant's IDS).

With respect to claims 1 Norton discloses an input device for providing a signal to effect one of translational, rotational movement, and both translational and rotational movements of an object on a graphical display comprising a device for capturing video images; an input image processor that translate captured video images of human arm into signals that are delivered to an output image processor, the input image processor programmed to isolate a human form from a background; determine a position and a movement of arms of the human form; generate an output signal responsive to the position of human arms; and an output image processor (part of the computer system) that is programmed to effect one of the translational movement, rotational movement of an object on a graphical display in response to the signals received from the input image processor (see relevant discussion in the previous Office action).

Norton does not disclose that the input image processor programmed to isolate a human form from a background in a captured video image of the background without a human form, Norton rather compares consecutive frames to detect the motion of the human form.

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Nguyen teaches an input device (FIGS. 1-2) for providing a signal to effect an object on a graphical display including a device 200 for capturing video images, wherein an input image processor programmed to isolate a human form from a background in a captured video image of the background without a human form (col. 3, ll. 3-9) in order to process recognition of gestures provided by an individual 202.

It would have been obvious to one of ordinary skill in the art at the time when the invention was made to improve the input device of Norton with the technique taught by Nguyen, i.e. to program the image processor to isolate a human form from a background in a captured video image of the background without a human form, because it would allow real-time recognition of gestures made by subjects within a dynamic environment (col. 3, ll. 15-28).

As to claims 2, 14 and 26 Norton teaches application of the device in flight simulators (col. 9, ll.29-35), which are known to change views of what the “flying” person would see according to the input.

As to claim 3, see Norton, col. 5, ll. 25-28).

As to claims 4, 5 and 12, in addition to the above, both references teach calculating arm position and movement data (see Norton; col. 2, ll. 18-33; Nguyen; col. 3, ll. 1-13, for example).

As to claims 13 and 22, Nguyen teaches a flying bird as an object on the screen, which is known to move wings.

As to claim 20, both references additionally teach a computer system executing a program of instructions, the computer system being an article of manufacture.

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3. Claims 6, 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norton in view of Nguyen and further in view of Freeman and further in view of Wilke, US Pub. No. 2003/0137486 A1.

Norton discloses an input device for providing a signal to effect one of translational, rotational movement, and both translational and rotational movements of an object on a graphical display.

Nguyen teaches an input device for providing a signal to effect an object on a graphical display including a device for capturing video images, wherein an input image processor programmed to isolate a human form from a background in a captured video image of the background without a human form in order to process recognition of gestures provided by an individual.

Freeman teaches a hand gesture recognition in a computer system to control the movement of an object on a screen including capturing images of a portion of an arm of human form and calculating a position and movement of that portion including calculating angles.

None of the above discloses determining a horizontal extent of a torso of the person so as to isolate arm portion of the person in frames of captured video sequence.

Wilke teaches a method of recognizing hand gestures including determination of an extent of a torso (human body 13 in FIGS. 1 and 3a,b) for isolation of arm portions of a person (paras [0030]- [0066]).

It would have been obvious to one of ordinary skill in the art at the time when the invention was made to employ the technique taught by Wilke in the system of Norton, as modified by Nguyen and Freeman, to isolate the arms of the person, because it is only the arms

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that are used in controlling the object on the screen while the rest of the person's body stays unmoved, thus avoiding every time unnecessary processing of the image of the whole body.

4. Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Norton in view of Nguyen and further in view Freeman, US 5,454,043 (reference of record).

Norton discloses an input device for providing a signal to effect one of translational, rotational movement, and both translational and rotational movements of an object on a graphical display.

Nguyen teaches an input device for providing a signal to effect an object on a graphical display including a device for capturing video images, wherein an input image processor programmed to isolate a human form from a background in a captured video image of the background without a human form in order to process recognition of gestures provided by an individual.

None of the above discloses that calculating arm position and movement data includes calculating angles of principle moment of the arm position of the arm portions of the human form.

Freeman teaches a hand gesture recognition in a computer system to control the movement of an object on a screen including capturing images of a portion of an arm of human form and calculating a position and movement of that portion including calculating angles (col. 4, ll. 23-30).

It would have been obvious to one of ordinary skill in the art at the time when the invention was made to use calculating method of Freeman in the device of Norton as modified by Nguyen because the calculating of angles (orientations) together with contrast strength is

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useful in canceling low contrast noise, i.e. allow to ignore angles having strength below certain threshold (Freeman; col. 4, lines 25-31).

As to claim 19 Norton teaches an object being a flying object (col. 25, ll. 25-28), and Freeman teaches controlling a movement of a flying object on the screen (flight simulator).

***Allowable Subject Matter***

5. Claims 7-11, 15-17 and 23-25 objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

6. The following is a statement of reasons for the indication of allowable subject matter: no prior art found by the examiner that suggests modification of or combination with the cited prior art so as to satisfy the requirements of the dependent claims above.

***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexander Eisen whose telephone number is (703) 306-2988.

The examiner can normally be reached on M-F (8:30-4:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard A. Hjerpe can be reached on (703) 305-4709. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Alexander Eisen  
Primary Examiner  
Art Unit 2674

3-Sep-04